

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 105

Summary of the Western Natural Gas Company Truax - Traer #1
Bowman County, North Dakota
Well #516 Permit #531

by Clarence Carlson

Western Natural Gas Company - Truax - Traer #1, Bowman County, North Dakota, C NW 1/4 SW 1/4 Section 13, T. 132N., R. 102W., (1980' from South line and 660' from the West line.) Elevation: K.B. 3074' above sea level.

The Western Natural Gas Company - Truax - Traer #1 was spudded December 30, 1953 and 10 3/4 inch casing was set at 917 feet with 550 sacks of cement. The well was completed as a dry hole April 9, 1954 at a total depth of 10,628'.

Cement plugs of 20 sacks each were set at the following intervals.

10,333' - 10,382'
9,250' - 9,300'
8,300' - 8,350'

A 40 sack plug was set at 816'-917'.

A 5 sack plug was set in top of casing.

TESTS

DST 1 8097.5-8117 Tool open 1 hour, recovered 150 feet of mud. FP 0#, SIP (30 minutes) 2480#.

DST 2 8401-8440 Tool open 1 hour, recovered 2046 feet of muddy salt water, FP 190-810#, SIP (30 minutes).

DST 3 10,417-10,445 Tool open 30 minutes, recovered 990 feet of water cushion, 270 feet mud and slightly oil cut salt water, 1980 feet slightly oil cut salt water. FP. 565-1610#, SIP (30 minutes) 4390#.

DST 4 10,584-10,628 Tool open 2 hours, recovered 990 feet of water cushion, 180 feet muddy salt water. FP. 435-465# SIP (30 minutes) 505#, H.P. 5830#.

CORES

7608-7658 10,415-10,445
8390-8440 10,582-10,628

Formation tops were picked from samples, electric and radioactivity logs corrected to the electric log; not all lithologic tops called in following list. Colors determined from the rock color chart.

TOPS

Cretaceous System	
Pierre fm.	1470
Niobrara fm.	3585
Greenhorn fm.	4240
Muddy Sand	4930
Dakota Silt	5210
Dakota Sand	5245
Jurassic System	
Morrison fm.	5404
Sundance fm.	5505
Piper fm.	6060
Triassic System	
Spearfish fm.	6305
Permian System	
Minnekahta fm.	6868
Opeche fm.	6920
Pennsylvanian System	
Minnelusa fm.	6980
Mississippian System	
Amsden fm.	7087
Big Snowy fm.	7295
Kibbey Lime	7718
Charles fm.	7850
Mission Canyon fm.	8340
Lodgepole fm.	8720
Englewood fm.	9283
Devonian System	9300
Silurian System	
Interlake Group	9830
Ordovician System	
Upper Stony Mtn. fm.	10,230
Lower Stony Mtn. fm.	10,320
Red River fm.	10,400

1430-1485	Sand, medium to fine grained, shale, light gray.
1485-1515	Shale, light gray.
1515-1625	Shale, medium gray.
1635-1694	Shale, medium gray and light olive gray.
1694-1723	Shale, medium gray.
1723-1812	Shale, medium gray and light olive gray.
1812-1931	Shale, medium gray, bentonitic.
1931-1991	Shale, medium light gray, bentonitic, pyrite.
1991-2170	Shale, medium light gray, medium dark gray, bentonitic.
2170-2230	Shale, medium dark gray.
2230-2350	Shale, medium light gray to medium dark gray.
2440-2650	Shale, medium gray, bentonitic, shell fragments.
2650-2680	Shale, medium light to medium dark gray, bentonitic.
2680-2710	Shale, medium gray, bentonitic, shell fragments.
2710-2750	Shale, medium gray, and light olive gray, bentonitic, shell fragments.
2750-2830	Shale, medium gray, bentonitic, shell fragments.
2830-2900	Shale, medium gray, light olive, gray, bentonitic, shell fragments.
2910-2920	Shale, medium gray shell fragments.

2950-2940 Shale, as above.
 2950-2970 Shale, medium to medium dark gray, slightly bentonitic.
 2970-3090 Shale, medium gray, pyrite, slightly bentonitic.
 3090-3250 Shale, medium to medium dark gray, slightly bentonitic, shell fragments.
 3250-3370 Shale, medium gray, bentonitic.
 3370-3450 Shale, medium gray, light brown, bentonitic, shell fragments.
 3450-3470 Shale, medium gray bentonitic, some white bentonite.
 3470-3560 Shale, medium gray, bentonitic.
 3570-3580 Shale, medium gray, bentonitic.
 3580-3620 Shale, medium gray, light brown, bentonitic, white bentonitic, shell fragments.
 3620-3690 Shale, medium gray, bentonitic, shell fragments.
 3690-3750 Shale, medium to medium dark gray, calcareous, few white specks.
 3750-3790 Shale, medium gray, shell fragments.
 3800-3840 Shale, medium to medium dark gray, shell fragments.
 3840-3920 Shale, dark gray, calcareous.
 3920-3950 Shale, dark to medium gray, calcareous.
 3960-3990 Shale, medium to dark gray, calcareous.
 4000-4070 Shale, medium to dark gray, few shell fragments.
 4070-4090 Shale, medium gray, bentonitic.
 4090-4110 Shale, medium to dark gray, white bentonite with Biotite.
 4110-4200 Shale, medium gray, slightly calcareous, bentonite.
 4200-4250 Shale, medium to dark gray.
 4250-4290 Shale, dark gray.
 4290-4310 Limestone, light gray, fragmental, shale, dark gray, white specks.
 4320-4340 Shale, dark gray, calcareous, white specks, some limestone, as above.
 4350-4360 Shale, dark gray, calcareous, few white specks.
 4360-4400 Shale, as above, medium gray, shell fragments.
 4400-4450 Shale, dark gray, calcareous, white specks, shell fragments.
 4450-4530 Shale, medium to medium dark gray, slightly calcareous.
 4530-4630 Shale, dark gray.
 4630-4650 Shale, grayish black.
 4650-4760 Shale, dark gray.
 4760-4840 Shale, dark gray to grayish black.
 4840-4900 Shale, dark gray.
 4910-4950 Shale, dark gray.
 4950-4970 Sandstone, colorless, medium grained, silty.
 4970-4980 Sandstone, colorless to light gray, medium to fine grained, silty, shale dark gray.
 4980-5000 Shale, dark gray, some sandstone as above.
 5000-5010 Shale, dark gray.
 5010-5030 Shale, light brownish gray, bentonitic.
 5030-5070 Shale, light brownish gray, medium gray, bentonitic.
 5070-5100 Shale, medium to dark gray.
 5100-5170 Shale, dark gray.
 5170-5230 Shale, medium to dark gray.
 5230-5250 Shale, as above, siltstone, light gray.
 5250-5270 Sandstone, light gray to light brownish gray, fine grained, siltstone, shale, as above.
 5270-5280 Sandstone, light gray, fine grained, silty, siltstone, light gray.
 5280-5300 Sandstone as above, shale, medium gray.
 5300-5360 Shale, medium light to medium gray, siderite nodules, sandstone,

as above.

5360-5400 Shale, medium light gray to dark gray, little sandstone light gray, fine grained.

5400-5410 Shale, medium light gray, siderite nodules, sandstone light gray, medium to fine grained, well cemented.

5410-5430 Shale, medium light to medium gray, olive gray, sandstone, as above, siltstone medium gray.

5430-5460 Shale, medium light to medium gray.

5460-5480 Shale, as above, little sandstone light gray, fine grained.

5480-5500 Shale, medium light gray, grayish red purple, siltstone, medium to light gray, calcareous.

5500-5520 Shale, light greenish gray, light brownish gray, medium gray, siltstone light gray, glauconitic.

5520-5540 Shale, as above, siltstone as above, limestone white to light gray, fragmental.

5540-5550 Shale, light brownish gray, grayish red purple, medium gray, sandstone light gray, fine grained, calcareous.

5550-5560 Shale, greenish gray 5GY6/1, pale red 10R6/2, light to medium gray.

5560-5610 Shale, as above, sandstone light gray, fine grained, calcareous.

5610-5620 Shale, dark gray.

5620-5700 Shale, medium gray, dark gray, pale red, greenish gray.

5700-5720 Sandstone, very light gray, fine grained, calcareous.

5720-5740 Sandstone as above, shale, light green 5G7/4 grayish red purple grayish red 5R4/2.

5740-5760 Sandstone, very light gray, fine grained, calcareous, with little glauconite shale, as above.

5760-5800 Sandstone, very light gray, fine grained, calcareous, some shale, as above.

5800-5810 Shale, light to medium gray, grayish red, sandstone as above.

5810-5860 Shale, light olive gray, greenish gray 5G6/1, light to medium gray.

5860-5890 Sandstone, light gray, light brownish gray, very fine grained, calcareous.

5890-5910 Shale, light gray, greenish gray, light brownish gray, some sandstone as above.

5910-5980 Shale, greenish gray 5G6/1, brownish gray, medium gray.

5980-6010 Limestone, light gray to white, fragmental and fine grained, shale as above.

6020-6060 Shale, light olive gray, light greenish gray.

6060-6120 Limestone, white to light yellowish gray, sublithographic.

6120-6130 Limestone, light gray to light yellowish gray, finely crystalline, dense.

6130-6150 Dolomite, moderate orange pink and grayish red 10R4/2, fine grained, limestone as above, shale, dark gray, greenish gray.

6150-6160 Dolomite, as above, shale, greenish gray.

6160-6180 Shale, greenish gray, arenaceous, calcareous, some sandstone light greenish gray, fine grained calcareous.

6180-6190 Limestone, light yellowish gray, sublithographic, shale, greenish gray.

6190-6200 Shale, pale reddish brown, greenish gray.

6200-6220 Shale, pale reddish brown, gypsum.

6220-6230 Limestone, light gray to light brownish gray, sublithographic.

6230-6270 Shale, pale reddish brown, gypsum.

6270-6280 Shale, as above, gypsum, siltstone, moderate reddish orange.

6280-6300 Siltstone, moderate reddish orange, slightly calcareous, arenaceous shale, pale reddish brown, anhydrite.

6300-6320 Siltstone, moderate reddish orange, slightly calcareous, some well rounded medium quartz grains, anhydrite.

6320-6400 Siltstone, moderate reddish orange, slightly calcareous.

6400-6420 Siltstone, as above, colorless anhydrite.

6420-6470 Siltstone, as above, anhydrite, colorless to grayish pink, shale, medium gray.

6470-6490 Siltstone, as above, anhydrite, colorless, white.

6490-6520 Shale, pale reddish brown anhydrite, colorless white.

6520-6530 Siltstone, moderate reddish orange, anhydrite, shale as above.

6530-6550 Siltstone, as above, anhydrite, white, flaky muscovite.

6550-6600 Siltstone, as above, anhydrite, shale, pale reddish brown.

6600-6660 Siltstone, moderate reddish orange, slightly calcareous, anhydrite.

6660-6670 Anhydrite, white to colorless, siltstone, as above.

6670-6700 Siltstone, as above, anhydrite, shale, moderate reddish brown.

6700-6730 Shale, moderate, reddish brown, anhydrite.

6740-6750 Shale, as above, some anhydrite.

6760-6770 Shale, as above, anhydrite, siltstone, moderate reddish orange.

6780-6840 Shale, moderate reddish brown, anhydrite.

6840-6870 Shale, moderate reddish brown, medium gray.

6870-6880 Shale, as above, anhydrite, white to grayish pink.

6880-6900 Dolomite, light gray, pinkish gray, finely crystalline, limey, anhydrite.

6900-6920 Dolomite, light gray to pale red, finely crystalline, limey.

6920-6930 Shale, grayish red, slightly calcareous dolomite, as above.

6930-6950 Shale, grayish red to pale reddish brown, slightly calcareous.

6950-6960 Shale, as above, siltstone, moderate reddish orange, calcareous.

6960-6980 Siltstone, moderate reddish orange, calcareous, sandstone, moderate reddish orange fine to medium grained, calcareous.

6990-7000 Sandstone, light gray, pinkish gray, fine to medium grained.

7000-7050 Sandstone, moderate pink to moderate orange pink, fine to medium grained.

7050-7070 Sandstone, pinkish gray to moderate pink, fine to medium grained, slightly calcareous limestone grayish pink, fine grained, arenaceous.

7070-7140 Same as above.

7140-7190 Dolomite, light gray, fine grained, some sandstone, light gray, fine to medium grained.

7190-7240 Dolomite, light gray to pinkish gray, fine grained.

7240 Dolomite, light brownish gray, finely crystalline, dense, shale, dark gray.

7240-7270 Some anhydrite.

7270-7300 Anhydrite, white to colorless, dolomite as above.

7300-7310 Dolomite, light brownish gray, finely crystalline, anhydrite, shale medium to dark gray.

7310-7320 Shale, pale green 56 7/2 light brownish gray, medium gray, dolomite as above

7320-7350 Shale, variegated as above, some dolomite, anhydrite.

7350-7380 Dolomite, light brownish gray, fine grained, shale, as above.

7380-7420 Limestone, light gray to brownish gray, finely crystalline, dense,

some dolomite and shale, as above.

7420-7480 Limestone, light brownish gray, finely crystalline, dense, some dolomite, as above.

7480-7510 Limestone, as above, few ostracodes.

7510-7550 Limestone, as above, shale pale green medium gray, dusky yellow.

7550-7580 Shale, pale yellowish green, grayish red 10R4/2, limestone as above.

7580-7590 Limestone, very light gray, sublithographic, shale variegated.

7600-7610 Limestone, and shale, as above.

Cores

7609-7614 Limestone, light brownish gray, fine to medium crystalline, dense, slight stain on fractures.

7614-7615 Shale, dark gray, thinly laminated, limestone, light gray, fine grained silty.

7615-7618 Limestone, light to medium gray, fine to medium crystalline dense.

7618-7620 Shale, light gray, very calcareous.

7620-7621 Limestone, light brownish gray, finely crystalline and fragmental, white anhydrite.

7621-7623 Shale, light gray, very calcareous, limestone light gray, finely crystalline dense.

7623-7625 Shale, medium gray, silty, calcareous.

7625-7628 Shale, light greenish gray, sandy, calcareous.

7628-7638 Shale, light greenish gray to medium gray, silty, calcareous.

7638-7639 Shale, light greenish gray, calcareous, fine sand grains.

7639-7643 Sandstone very light gray, fine grained, calcareous.

7643-7645 Shale, light greenish gray, reddish brown, calcareous.

7645-7646 Sandstone, very light gray, fine grained, calcareous.

7646-7647 Shale, light greenish gray, silty calcareous.

7647-7652 Sandstone, white, fine grained, slightly calcareous, some green shale in thin layers.

7652-7655 Sandstone, pale red 10R 6/2, fine grained, slightly calcareous silty.

7655-7659 Siltstone, pale red 10R 6/2, slightly calcareous samples.

7660-7700 Sandstone, white to pale red, fine grained, slightly calcareous some shale, light greenish gray.

7700-7720 Sandstone, white to pinkish, gray, fine to medium grained, slightly calcareous.

7720-7740 Sandstone as above, dolomite, pale red, fine grained.

7740-7790 Limestone, light gray to brownish gray, finely crystalline and fragments, few brachiopod fragments.

7790-7820 Dolomite, moderate reddish orange, fine grained, limey shaly.

7830-7840 Dolomite, as above, sandstone pale red, medium grained.

7850-7870 Dolomite, light brownish gray, fine grained, limey, also grayish red, fine grained, anhydrite.

7870-7890 Limestone, brownish gray, finely crystalline and fragmental.

7890-7900 Limestone, very light yellowish gray, sublithographic, also brownish gray as above.

7900-7920 Limestone light gray to brownish gray, fine to medium crystalline.

7920-7940 Limestone as above, shale, dark gray.

7940-7960 Limestone as above, anhydrite white.

7960-7980 Dolomite, light gray, fine grained, some anhydrite.

7980-8010 Limestone, light brownish gray, fine grained.

8010-8060 Anhydrite, light bluish gray, dense.

8060-8100 Limestone, light brownish gray, fine grained, anhydrite as above.
 8100-8140 Limestone, light brownish gray, fine to medium grained.
 8140-8160 Limestone, light yellowish gray to light brownish gray, fine to medium grained, some fragmental.
 8160-8170 Limestone as above and light yellowish brown, microsucrosic dolomitic.
 8170-8200 Limestone, light yellowish gray, microsucrosic, dolomitic, silty.
 8200-8240 Limestone, light brownish gray, fine to medium grained, dense.
 8240-8250 Anhydrite, light bluish gray, white, dense, limestone as above.
 8250-8270 Limestone as above, some anhydrite.
 8270-8340 Anhydrite, light bluish gray.
 8340-8350 Anhydrite as above, limestone, light brownish gray, fine to medium grained and fragmental.
 8350-8390 Limestone, light brownish gray, fine grained fined to microsucrosic.

Cores

8390-8396 Limestone, light brownish gray, microsucrosic, fair porosity.
 8396-8403 Limestone, light brownish gray, fine grained, dense, some coarse crystals.
 8403-8406 Limestone, light brownish gray, fine to medium crystalline, dense.
 8406-8408 Limestone, light brownish gray, fine to medium grained, coral fragments.
 8408-8420 Limestone, light brownish gray, fine to medium grained, some fragmental, dense.
 8423-8428 Limestone, light brownish gray, fine to medium grained, some fragments, some pinpoint porosity.
 8428-8440 Limestone, light brownish gray, fine to medium grained, dense, some fragments, slight stain and fluorescence 36-37.

Samples

8440-8530 Limestone, light brownish gray, fine grained, some fragments.
 8540-8570 Limestone, light brownish gray, fine grained.
 8570-8600 Limestone as above, some oolitic, light gray limestone.
 8600-8660 Limestone, light brownish gray, oolitic.
 8660-8700 Limestone, oolitic as above and light brownish gray, fine to medium grain.
 8700-8720 Dolomite, light brownish gray, fine grained, limestone, light brownish gray, fine to medium grained.
 8720-8760 Limestone, light gray, fine grained, also light brownish gray, fine grain.
 8760-8790 Limestone, light to medium gray, fine grained, fragmental, some dolomite, light brownish gray, fine grained.
 8790-8810 Limestone, light to medium gray, fine grained.
 8820-8890 Limestone, light to medium gray, fine grained, some brachiopod fragments.
 8890-8920 Limestone as above, some shale, dark gray.
 8920-8980 Limestone, light to medium gray, fine grained, dense, some brachiopod fragments.
 9000-9060 Limestone, light to medium gray, fine grained, dense, some brachiopod fragments.
 9060-9130 Limestone, light gray to light brownish gray, fine grained, dense, many shell fragments.
 9130-9140 Limestone, as above, some shale, dark gray.

9140-9170 Limestone, light gray to light brownish gray, fine grained, dense, some shell fragments

9180-9230 Limestone light brownish gray, finely crystalline dense, shale dark gray.

9230-9310 Limestone as above.

9310-9360 Shale, dark gray, limestone light gray, light brownish gray, fine grained.

9360-9370 Limestone, light gray, fine grained, also light brownish gray, some shale, dark gray.

9370-9400 Limestone as above, dolomite, light pinkish gray, fine grained.

9400-9440 Limestone, light brownish gray, microsucrosic, dolomitic, also light gray, fine grained.

9440-9490 Limestone as above, dolomite, light yellowish gray, fine grained.

9490-9510 Limestone and dolomite, as above, some dark gray shale.

9510-9550 Dolomite, light brownish gray, fine grain to microsucrosic.

9550-9560 Dolomite as above, some dark gray shale.

9560-9590 Dolomite, light brownish gray, light gray, fine grained, microsucrosic, some shale as above.

9590-9600 Dolomite as above, limestone, brownish gray, dense.

9600-9650 Limestone, brownish gray, dense, some dolomite, light gray, fine grained.

9650-9670 Dolomite, light gray to light brownish gray, fine grained to microsucrosic, some limestone as above.

9670-9690 Dolomite as above, some limestone as above, shale, dark gray.

9690-9720 Dolomite, light gray, fine grained.

9730-9750 Dolomite, light gray, fine grained, poor samples.

9750-9770 Dolomite, grayish red, light gray, fine grained, limey argillaceous.

9770-9790 Dolomite as above, shale, dark gray.

9790-9810 Sandstone, very light gray, fine to coarse grained, calcareous, some dolomite above.

9810-9840 Sandstone, very light gray, fine to coarse grained, calcareous, shale, dark gray.

9840-9870 Dolomite, light yellowish gray, fine grained, dense.

9870-9920 Dolomite as above, some white chert.

9920-9930 Limestone, very light gray, fine grained, some chert, dolomite, light yellowish gray, fine grained.

9930-9960 Dolomite, light gray, fine grained.

9960-9980 Dolomite, light gray to light yellowish gray, fine grained.

9980-10000 Dolomite as above, some chert.

10000-10170 Dolomite, white to light yellowish gray, fine grained to sublithographic.

10170-10190 Dolomite, light yellowish gray to light brownish gray, fine grained, some grayish red dolomite.

10190-10210 Dolomite, light brownish gray to light yellowish gray, fine grained, limy.

10210-10270 Dolomite as above, some dolomite dark brownish gray, fine crystalline, dense.

10270-10290 Dolomite, dark brownish gray, finely crystalline, dense, some shale, dark gray.

10290-10340 Dolomite, light brownish gray, microsucrosic, limey.

10340-10370 Dolomite as above, some limestone, light gray, fine grained.

10370-10400 Limestone, light gray, fine grained, some dolomite as above.

10400-10415 Limestone, light brownish gray, fine grained.

Cores

10415-10419 Limestone, brownish gray, finely crystalline, dense.
10419-10421 Limestone, brownish gray, finely crystalline dense,
petroliferous odor.
10421-10422 Limestone, brownish gray, fine to coarse crystalline, dense.
10422-10425 Limestone, brownish gray, finely crystalline, dense,
petroliferous odor.
10425-10437 Limestone, dark brownish gray, finely crystalline, dense, some
stain, good odor.
10437-10438 Anhydrite, colorless to light gray.
10438-10443 Dolomite, light brownish gray, fine grained, slight porosity.
10443-10445 Limestone, light brownish gray, fine to medium crystalline,
dense.

Samples.

10445-10460 Limestone, light brownish gray, fine to medium grained, poor
samples.
10470-10500 Limestone, brownish gray, finely crystalline, dense.

Cores

10492-10497 Dolomite, light brownish gray, fine to medium grained, dense.
10497-10498 Dolomite as above, chert, dark brownish gray.
10498-10499½ Dolomite as above.
10499½-10504 Anhydrite, brownish gray.
10504-10507 Dolomite, light brownish gray, fine to medium grained, dense.
10507-10508 Dolomite, light brownish gray, fine grained matrix with
medium to coarse crystals, carbonaceous partings.
10508-10513 Dolomite, light brownish gray, fine grained, stylolitic
partings with carbonaceous material and pyrite.
10513-10518 Dolomite, light brownish gray, fine grained, dense, with some
thin carbonaceous partings.
10518-10525 Dolomite, light gray, fine grained.

Samples

10540-10560 Dolomite, light brownish gray, fine grained, dense.
10560-10580 Dolomite, light gray to light brownish gray, fine grained,
dense.

Cores

10580-10585 Limestone, light gray, fine to medium grained, dense, with
some carbonaceous partings.
10585-10587½ Limestone, brownish gray, finely crystalline, dense, few small
fragments of brachiopods, some medium calcite crystals.
10587½-10597 Limestone, light brownish gray, fine grained, dense,
carbonaceous material in stylolitic partings.
10597-10603 Dolomite, dark gray, fine grained, dense.
10603-10628 Limestone, light brownish gray, fine to medium grain, dense,
some carbonaceous material in stylolitic partings.
10628 Total Depth.